REMARKS

Claims 21-33, and 35-41 are pending, with claims 21, 33 and 38 being the independent claims. New claim 41 is added herein. Claim 34 is canceled.

I. The Abstract

In the Office Action mailed January 30, 2004, the Examiner required under 37 C.F.R. §1.72(b) that an Abstract on a separate sheet be filed (Office Action, page 2). Applicants note that the present application is a U.S. national stage application of international stage PCT application No. PCT/FI99/00724, a published pamphlet version of which was included in the filing papers of this national stage application as WO 00/14906. The abstract appeared on the cover sheet of the published pamphlet version of the PCT application. As stated at §1893.03(e) of the MPEP (emphasis added):

> When the international application is published as the pamphlet, the abstract is reproduced on the cover page of the publication, even though it appears on a separate sheet of the international application in accordance with PCT Rule 11.4(a). Thus the requirement of 37 C.F.R. §1.52(b) that the abstract "commence on a separate sheet" does not apply to the copy of the application (pamphlet) communicated to the designated Offices by the International Bureau under PCT Article 20. Accordingly, it is improper for the examiner of the U.S. national stage application to require the applicant to provide an abstract commencing on a separate sheet if the abstract does not appear on a separate sheet in the pamphlet. Unless the abstract is properly amended under the U.S. rules during national stage processing, the abstract that appears on the cover page of the pamphlet will be the abstract published by the USPTO under 35 U.S.C. §122(b) and in any U.S. patent issuing from the application.

Therefore, in the present national stage application, the filing of the original Abstract on a separate sheet is not necessary. Withdrawal of the objection is respectfully requested.

II. Allowable claim 32

Applicants respectfully thank the Examiner for indicating that dependent claim 32 contains allowable subject matter. Applicants wish to preserve the allowability of claim 32 in the event that an independent version of claim 32 is desired in the future. Thus, it is respectfully requested that Examiner not withdraw the allowability of claim 32.

III. The anticipation rejections of independent claims 21, 33, and 38 in view of Wickman (WO 96/07250)

The following summary is provided for the Examiner's convenience.

An embodiment of present invention detects actual "time delays," for example in microseconds, which affect communications between a base station and a mobile station in a mobile network. However, when a mobile station is closer than 500 meters to a base station in a typical mobile network environment, it is known that propagation time delays between the base station and the mobile station are negligible or effectively zero (page 5, lines 15-1 of specification). For example, if the base station is located in a microcell (i.e., a small cell area less than a few hundred meters, for example, in a building), there is a negligible time delay between the mobile station and the base station as the mobile station sends communication signals to the base station and vice versa. Therefore, when propagation delays are detected which are greater than zero in a microcell environment, there must be a reason for the delay. The present invention, as shown in the embodiment Figure 4, uses this logic for a microcell environment to assume that a "network element" such as a radio repeater is present between the base station and the mobile station, and to assume that the repeater is causing the delay.

Thus, by using this logic, a significant benefit is achieved in that no additional signaling is required to detect the presence of a network element such as a radio repeater which is causing the delay, and therefore the repeater itself does not have to actively signal the base station or add a control field to a communication signal to indicate that a radio repeater or other relay element is present as is required in cited prior art reference, Wickman. Therefore, the present invention is compatible with ordinary radio repeaters which do not contain sophisticated signaling or monitoring equipment and it is therefore different in basic operation and theory from Wickman.

Thus, there is a fundamental difference between "detecting a time delay" (in microseconds for example) verses merely reading "a control field inserted into a message" wherein the repeater actively announces itself to the network, i.e., the presence of the repeater is announced by the repeater itself using additional active signaling. This fundamental difference should be kept in mind, i.e., measuring microseconds of delay verses "additional signaling" announcing "repeater present."

The present invention in another embodiment also uses the same underlying logic above but in a non-microcell environment, i.e., a regular cell which could extend 35 km from the base station for example in a GSM system. It is helpful for understanding now to discuss the time delay in terms of Timing Advance (TA) which is discussed in the specification and which is a widely known feature in TDMA and GSM. In short, Timing Advance (TA) is an amount in microseconds to preadminister or "advance" the transmission from the mobile station in time (i.e., in order to give the transmission a head start to compensate for a time delay experienced) and to keep the proper synchronization between the received "reception" frames to the mobile station and the "transmission" frames transmitted from the mobile station. In GSM systems, Timing Advance is typically between 0 and 233 microseconds. Synchronization is extremely important in GSM and TDMA for example for a host of reasons including that the burst periods may be sent on different frequencies, etc.

Thus, Timing Advance (TA) in microseconds is usually measured by the base station in GSM systems. This can be done by checking the position of the TSC (Training Sequence Code) which is mandatory from frames transmitted from the mobile station as is known in the art.

Thus, because each base station typically knows or can determine a maximum Timing Advance (TA) possible for a mobile station situated in the cell coverage area, there is a "known" maximum possible time delay or Timing Advance (TA) which can be used. Therefore, according to the present invention, if the time delay is more than the maximum Timing Advance (TA), the presence of a repeater can be assumed, as explained, for example, at page 7, lines 3-8 of the specification:

> "The method described above is not limited only to the indoor or microcell use, but can also be used for example in macrocells if a maximum timing advance for a mobile station communicating directly with the base station can be found and a timing advance caused by a relay element is greater than this maximum timing advance. Then the limiting criteria in step 43 in Fig. 4 is not, limited to that value is greater than zero, but greater than some specific cell value."

Thus, the logic of the present invention is useable, for example, in regular cell or micro cell environments.

The anticipation rejection of independent Claim 21 in view of Wickman

Independent Claim 21 has been amended merely for format and clarity. No amendment necessitating a new search has be performed. The amendments are respectfully supported by the original claim language and the specification. The amended language: "a known time delay of mobile stations communicating directly with the base stations" is amended only for format and clarity and is supported as discussed above by the specification at page 5, lines 15-17. It is noted that, "zero" can be a "known" time delay as shown in Figure 4 and alternatively as a "specific cell value" as quoted above. Thus, no new matter is added.

Wickman does not detect "an increased time delay as compared to a known time delay" as recited in amended claim 21, but instead relies on having the repeater (REP) actively generate an additional signaling message to a control field to announce the presence of the repeater in the network. Also, the repeater adds a specific identification of the repeater, i.e., "a local REP-unique addition." Therefore, active additional signaling is performed by the repeater in Wickman. In short, the presence of the repeater itself triggers an announcement regarding itself, and no "detecting" of the repeater element by detecting an increased time delay as compared to a known time delay is used because an explicit additional signaling from the repeater itself is used instead to actively announce its presence. Therefore, there is a fundamental difference between "announcing" and "being detected," and an additional difference in that the specific detection as claimed, i.e., by detecting an increased time delay as compared to a known time delay " is not performed in Wickman because it announces its presence instead.

Furthermore, no detecting of "time delays" or "detecting an increased time delay" is performed by Wickman. Instead, applicants have reviewed Wickman, and believe that in Wickman if a repeater is announced, then it announces a fixed delay associated with the repeater, and no detection or measurement of the an actual "delay time" is performed. Coarse time slot values are believed to be used instead. Therefore, the disclosure of Wickman does not respectfully anticipate the elements of claim 21.

Therefore, it is respectfully asserted that amended independent claim 21 is not anticipated by Wickman.

The anticipation rejection of independent claim 33 in view of Wickman

Independent claim 33 has been amended for clarity and formatting reasons only. No new matter is added. No amendment necessitating a new search has be performed.

In a similar manner as discussed above with regard to claim 21, it is also the case with regard to claim 33 that "no detecting an increased time delay as compared to known time delays of mobile stations communicating directly with the base transceiver station" is disclosed by Wickman at least because the repeater in Wickman "announces itself" and its presence in the network by additional signaling. Furthermore, no detecting of time delays is performed by Wickman. Instead, applicants have reviewed Wickman, and believe that in Wickman if a repeater is announced, then it announces a fixed delay associated with the repeater, and no detection or measurement of the an actual "delay time" or "detecting an increased time delay" is performed. Coarse time slot values are believed to be used instead. Therefore, it is respectfully asserted that independent claim 33 is not anticipated by Wickman.

The anticipation rejection of independent claim 38 in view of Wickman.

Claims 38 has been amended for clarity and form. No amendment necessitating a new search has be performed.

As discussed above, no "detection" *per se* of actual time delays, for example in microseconds, occurs in Wickman at least because the repeater in Wickman "announces itself" and its presence in the network by additional signaling. Also as discussed above, applicants have reviewed Wickman, and believe that in Wickman if a repeater is announced, then it announces a fixed delay associated with the repeater, and no detection or measurement of the an actual "delay time" or "detecting an increased time delay" is performed. Coarse time slot values are believed to be used instead.

Therefore, it is respectfully asserted that independent claim 38 is not anticipated by Wickman.

All of the remaining dependent claims depend from one of the allowable independent claims, 21, 33, or 38 discussed above. Therefore, the dependent claims are also respectfully asserted to be allowable. Further, the additional references cited in the obviousness rejections

discussed below, do not make up for these deficiencies discussed above regarding the primary reference, Wickman.

IV. The obviousness rejections of dependent claims 23, 26, and 35 in view of the combination of Wickman and Katz (US 6,643,526)

As discussed above, the Wickman reference is respectfully asserted to be deficient and does not teach all of the limitations of independent claims 21 and 33. It is also respectfully asserted that the cited Katz reference does not make up for the deficiencies discussed above in the primary reference in regard to independent claims 21 and 33 on which dependent claims 23, 26, and 35 depend, respectively.

Katz deals with a method of directional radio communication wherein signals are only sent in one concentrated direction to increase range and reduce power. It does not deal with repeaters and is cited merely for discussing the concept of "Timing Advance" which applicants have already stated in the specification is a well known feature. Therefore, Katz does not respectfully make up for the deficiencies in Wickman regarding independent claims 21 and 33, and as claims 23, 26, and 35 depend from claims 21 or 33 respectively, they are also allowable because a *prima facie* case of obviousness under 35 USC §103 has not been established by the combination of Wickman and Katz (see MPEP 706.02(j)) at least because all of the limitations of claims 21 or 33 are not taught or suggested by the combination, therefore all of the limitations of dependent claims 23, 26, and 35 are also not taught or suggested.

Namely, as stated above, Wickman does not detect "an increased time delay as compared to a known time delay" as claimed by claim 21, or "means for *detecting* communications *relayed via at least one of the elements* by detecting an increased time delay" but instead relies on having the repeater (REP) actively generate an additional signaling message to a control field to announce the presence of the repeater in the network. In short, in Wickman the presence of the repeater itself triggers a message regarding itself, and no detecting of the repeater element by detecting an increased time delay as compared to a known time delay is used because an explicit additional signaling from the repeater itself is used instead to actively announce its presence. Therefore, there is a fundamental difference between "announcing" and "being detected," and an additional difference in that the specific detection as claimed, i.e., by "detecting an increased time delay as

compared to a known time delay" is not performed in Wickman because it announces its presence instead. Therefore, the disclosure of Wickman does not respectfully anticipate the elements of claim 21 or claim 33.

Additionally, it respectfully does not make sense to combine Wickman with Katz to suggest the present claims of detecting time delays because Wickman works on the principle of having a repeater announce itself, while Katz does not deal with repeaters, but with directing beams in a narrow and directional manner to extend range and conserve power. Therefore, there is no motivation to combine these references. Additionally, as all of the limitations of the claims are not taught or suggested by the combination, there can be no reasonable expectation of success based on the combination (see MPEP 706.02(j)).

Therefore, dependent claims 23, 26, and 35 are respectfully asserted to be allowable.

V. The obviousness rejections of dependent claim 24 in view of the combination of Wickman and Suonvieri (US 6,047,181)

Applicants incorporate the arguments above at section IV. herein by reference in order to respectfully avoid belaboring the point that the Wickman primary reference is deficient and does not teach or suggest all of the limitations of independent claim 21. The Suonvieri reference also does not make up for these deficiencies and is cited for allegedly teaching that the Timing Advance (TA) is compared to a predetermined value. Suonvieri deals with allocating the radio capacity of base station into parts based on roughly which regions the mobile stations are located in within the cell. Suonvieri uses the Timing Advance to roughly allocate the mobile stations into regions and then matches available radio capacity to needed radio capacity. Therefore, a combination of Wickman and Suonvieri does not teach or suggest all of the limitations of claims 21 and 24 and does not make up for the deficiencies of Wickman regarding claim 21. For example, claim 21 claims "determining whether a communication *was relayed* via at least one of the network elements by detecting *an increased time delay as compared to a known time delay* of mobile stations communicating directly with the base stations." Neither Wickman or Suonvieri teach or suggest these claimed limitations. For example, Suonvieri does not teach or suggest detecting communications that were "relayed," i.e., through a repeater, for example, or comparing time delays *to detect these network (repeater) elements*. Rather, Suonvieri merely uses the Timing Advance to

make groups or categories of mobile stations based on location of the mobile stations for example to allocate radio capacity on an intracell basis.

Therefore, it is respectfully asserted that all of the limitations of claim 24 are not taught or suggested by the cited combination. Therefore, a *prima facie* case of obviousness has not been made as required by 35 USC §103 and MPEP 706.02 (j).

VI. The obviousness rejections of dependent claim 25 in view of the combination of Wickman and Heyl (US 5,613,010)

Applicants incorporate the arguments above at section IV. herein by reference in order to respectfully avoid belaboring the point that the Wickman primary reference is deficient and does not teach or suggest all of the limitations of independent claim 21. The Heyl reference also does not make up for these deficiencies and is cited for allegedly teaching that a predetermined value can be zero. However, it is respectfully noted that Heyl has nothing to do with the present claims and is directed to reproducing sound. A comparator 214 is referred to by the USPTO at Col. 7, lines 3-5 wherein a counter 212 can be set to zero. It is respectfully asserted that this has no nothing to do with actual time delays that are measured including a time delay which is zero.

Therefore, it respectfully does not make sense to combine these references to teach or suggest the limitations of claim 25, and the combination does not meet the requirements for a *prima facie* case of obviousness under 35 U.S.C. §103 as described in detail at MPEP 706.02(j) at least because all of the limitations of independent claim 21 are not taught or suggested by the combination as explained at section IV. Thus, claim 25 is allowable.

VII. The obviousness rejections of dependent claims 27, 30, and 36 in view of the combination of Wickman and Prithviraj (US 5,987,513)

As discussed above at length, the Wickman reference is deficient and does not teach all of the limitations of independent claims 21 and 33. The cited Prithviraj reference does not make up for the deficiencies discussed above in the primary reference, Wickman, in regard to independent claims 21 and 33 on which dependent claims 27, 30, and 36 depend, respectively. This is mainly because it has nothing to do with mobile networks or time delays, but instead deals with network

management of protocols or computer networks. Therefore, in regards to dependent claims 27, 30, and 36 nothing in Prithviraj makes up for the deficiencies in Wickman regarding independent claims 21 and 33.

Additionally, given the different arts, it respectfully does not make sense to combine these references to teach or suggest claims 27, 30, and 36, and the combination does not meet the requirements for a *prima facie* case of obviousness under 35 U.S.C. §103 as described in detail at MPEP 706.02(j) at least because all of the limitations of independent claims 21 and 33 are not taught or suggested as discussed at section IV. above. Thus, claims 27, 30, and 36 are allowable.

VIII. The obviousness rejections of dependent claims 28, 29, 39, and 40 in view of the combination of Wickman and Gordon (US 5,987,316)

As respectfully discussed above at length, the Wickman reference is deficient and does not teach all of the limitations of independent claims 21, 33 or 38. The cited Gordon reference does not make up for the deficiencies discussed above in the primary reference, Wickman, in regard to independent claims 21, 33, or 38 on which dependent claims 28, 29, 39, and 40 depend, respectively. This is mainly because Gordon has nothing to do with communications with mobile stations because it is used instead with fixed stations that are part of a radio loop at fixed and known distances from a base station. In other words, instead of running wires to fixed stations, a radio loop is used instead from a base station. Thus, Gordon has nothing to do with the claimed features of "a known time delay of mobile stations." Therefore, the straightforward fixed distance calculations made in the base station of Gordon have nothing to with the claimed base station features involving mobile stations. Therefore, the combination of Wickman and Gordon does not meet the requirements for a *prima facie* case of obviousness under 35 U.S.C. §103 as described in detail at MPEP 706.02(j) at least because all of the limitations of independent claims 21, 33 or 38 are not taught or suggested. Thus, claims 28, 29, 39, and 40 are allowable.

IX. New dependent claim 41 has been added

No new matter is added. It is respectfully requested that claim 41 be considered and allowed. The claim is supported at least at page 2b wherein it is stated that: "The method can be utilized without any monitoring equipment in the element itself...".

X. Conclusion

Applicants respectfully submit that this application is in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

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